

# Control of Internal and External Short Circuits in Lithium Ion and Lithium Batteries, Phase I

Completed Technology Project (2007 - 2007)



## Project Introduction

NASA has identified needs for compact high-energy-density primary and secondary batteries. Lithium and Lithium Ion cells, respectively, are meeting these needs for both manned and unmanned needs. The high power available in some of these cell chemistries can cause substantial internal heating in the event of sustained internal and external heating. At sufficiently elevated temperatures, cell components can react energetically causing cell case rupture, and in some cases, fire. The proposed will develop and demonstrate an internal means of controlling short circuit, which is chemically and electrochemically compatible with the cell's active materials. Using suitable controls, safe handling of an external short circuit will be demonstrated in small cells.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Giner Electrochemical Systems, LLC	Supporting Organization	Industry	Newton, Massachusetts



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Johnson Space Center (JSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

Massachusetts

Texas

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

## Technology Areas

### Primary:

- TX03 Aerospace Power and Energy Storage
  - └ TX03.2 Energy Storage
    - └ TX03.2.2 Electrochemical: Fuel Cells